

WHAT IS CLAIMED IS:

1. A semiconductor device, comprising:
  - a diode, including:
    - a p-type silicon layer, the p-type silicon layer containing germanium; and
    - a n-type silicon layer junctioned to the p-type silicon layer.
2. A semiconductor device, comprising:
  - a diode, including:
    - a p-type silicon layer, the p-type silicon layer containing germanium;
    - an intrinsic silicon layer junctioned to the p-type silicon layer; and
  - a n-type silicon layer junctioned to the intrinsic silicon layer.
3. The semiconductor device according to claim 1, the diode being disposed on one of an insulating substrate and an insulation layer.
4. The semiconductor device according to claim 1, having a plurality of diodes, and further comprising:
  - a bridge-rectifier circuit comprising the diodes, and rectifying a predetermined alternating-current voltage to a direct-current voltage.
5. The semiconductor device according to claim 4, comprising:
  - a coil antenna coupled to one side of the bridge-rectifier circuit; and
  - a smoothing capacitor coupled to the other side of the bridge-rectifier circuit, the coil antenna generating an alternating-current voltage by electromagnetic induction;
  - the bridge-rectifier circuit rectifying the alternating-current voltage supplied thereto into a direct-current voltage; and
  - the smoothing capacitor smoothing the direct-current voltage supplied thereto into a constant voltage.
6. A method of manufacturing a semiconductor device with a diode having a p-type silicon layer and a n-type silicon layer junctioned to the p-type silicon layer, comprising:
  - forming silicon-germanium mixed crystal by implanting germanium to the p-type silicon layer.
7. The semiconductor device according to claim 2, the diode being disposed on one of an insulating substrate and an insulation layer.

8. The semiconductor device according to claim 2, having a plurality of diodes, and further comprising:

a bridge-rectifier circuit comprising the diodes, and rectifying a predetermined alternating-current voltage to a direct-current voltage.